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Hence generally $2^{2n+1} \frac{d^n}{dx^n} \left\{ x^{n+1} \frac{d^{n+1}}{dx^{n+1}} e^{\sqrt{x}} \right\} = e^{\sqrt{x}}.$

Also solved by B. F. YANNEY.

PROBLEMS.

70. Proposed by J. A. CALDERHEAD, A. B., Professor of Mathematics, Curry University, Pittsburg, Pennsylvania.

Given $\sqrt{a+x} + \sqrt{a-x} = \sqrt{c}$ to find x .

71. Proposed by F. P. MATZ, D. Sc., Ph. D., Professor of Mathematics and Astronomy in Irving College, Mechanicsburg, Pennsylvania.

When $x=0$, find the the limit of the expression

$$U = \left(\frac{m+x}{m-x} \right)^{\frac{1}{x}} + \left(\frac{m-x}{m+x} \right)^{\frac{1}{x}}.$$

GEOMETRY.

Conducted by B. F. FINKEL, Springfield, Mo. All contributions to this department should be sent to him.

SOLUTIONS OF PROBLEMS.

54. Proposed by I. J. SCHWATT, Ph. D., University of Pennsylvania, Philadelphia, Pennsylvania.

Prove geometrically :

If through the center of perspective D of a given triangle ABC and its Brocard triangle $A'B'C'$ be drawn straight lines so as to pass through S_a, S_b and S_c (S_a, S_b , and S_c are the middle points of the sides BC, AC , and AB of the triangle ABC) and if $S_a A_1$ is made equal to DS_a , $S_b D_2$ equal to DS_b , and $S_c D_3$ equal to DS_c then are (1) the figures $D_1 O' A O$, $D_2 O' B O$ and $D_3 O' C O$ parallelograms (O and O' are Brocard's points), (2) the triangles $D_1 D_2 D_3$ and ABC are equal, and (3) $D_1 A$, $D_2 B$, and $D_3 C$ intersect in S , (S is the middle point of OO').

Solution by G. B. M. ZERE, A. M., Ph. D., Professor of Mathematics and Applied Science, Texarkana College, Texarkana, Arkansas-Texas.

Since AC, DD_2 and BC, DD_1 bisect each other the quadrilaterals $ADCD_2$ and $BDCD_1$ are parallelograms, and AD_2, BD_1 both being equal and parallel to DC are equal and parallel to each other. Hence $ABD_1 D_2$ is a parallelogram and AB is equal and parallel to $D_1 D_2$. Similarly, AC is equal and parallel to $D_1 D_3$, and BC is equal and parallel to $D_2 D_3$.

\therefore Triangle ABC is equal to triangle $D_1 D_2 D_3$. Also AD_1, BD_2 , and